

Summary of Visibility Tenability Criteria

	Visibility	Extinction Coefficient	OD/Meter	% Obs/ft
SFPE - JIN "Familiar"	13 Feet (4 m)	0.5/m	Approx 0.25OD/m	Approx 16%
SFPE - PURSER "Irritant"	16.4 Feet (5 m)	0.5/m	0.2 OD/m	Approx 14%
SFPE - BRYAN (24% Turn Back)	13 Feet	0.59/m	0.26 OD/m	Approx 17%
SFPE - BRYAN (47% Turn Back)	7-12 Feet	Approx. 0.76/m	0.33 OD/m	Approx. 19%
BRYAN (Mean Turn Back)	10 Feet	Approx. 0.76/m	0.33 OD/m	Approx 19%
INDIAN DUNES 1975			0.23 OD/m	Approx 15.5%
DUNES 2000			0.25 OD/m	Approx 17%
BABRAUSKAS (No Irritation) (Maximum in order to leave room)			0.5 OD/m	Approx 33% obs/ft
BABRAUSKAS (Irritation) (Maximum in order to leave house)			0.25 OD/m	Approx 17% obs/ft
TEWARSON & NEWMAN (Escape From Mines) (1981)	12 feet (3.7 m)		0.218	

LOOK AT THE CONSISTENCY OF THE BOLD ROWS (0.20 – 0.26)

"Clearly a critical level of Optical density at which visibility is reduced to 1m (86% obs/ft, 0.92 OD/m) represents an upper limit. This value should be considered as an absolute maximum value based solely on reduced visibility". (Pages 127-128) Subjects familiar with escape ways experience relatively more problems with physiological effects of smoke, and their escape becomes hampered when visibility falls below 4m. (Page 136) [Behavioral and Organizational Dimensions of Underground Mine Fires](#))

ISO 13571

- ISO 13571 Standard appears to reference 2 of Jin's papers on visibility.
- ISO Section 4.5 – Assumes occupants only stopped when visibility impaired so much that one cannot distinguish objects (irritation not taken into account.)
- However in section A.2.3 it states, "Sensory irritation often exacerbates the effects of simple smoke obscuration And the ability to negotiate escape routes." In section A.4.1 it states, "it is difficult to relate irritant concentrations quantitatively to their impact on ability to escape safely.
- In Section A.6 it states, "The components of life threat are treated as acting independently. In practice however some interaction will occur. For example, the effects of sensory irritants on the eye are additive with smoke obscuration, resulting in additional disorientation and hence detrimental at lower levels than would be the case in the absence of irritants,

SINCE ISO 13571 ADMITS THAT IRRITATION IS IMPORTANT YET THEY FAIL TO TAKE IRRITATION INTO ACCOUNT WHY SHOULD WE USE THIS CRITERIA WHICH IS SO INCONSISTENT FROM ALL OF THE ONE LISTED ABOVE.